Task 1

|  |  |  |
| --- | --- | --- |
| **student\_id** | **subject** | **professor** |
| 101 | Java | P.Java |
| 101 | C++ | P.Cpp |
| 102 | Java | P.Java2 |
| 103 | C# | P.Chash |
| 104 | Java | P.Java |

The above table is in 3 normal form and we can find out the name of the professor by the student number and subject. But since one subject can be taught by several teachers, the table is not in the normal Boyes-Codd form, in order to bring the table into this form, you need to split it into two tables without losing data.

|  |  |
| --- | --- |
| **student\_id** | **p\_id** |
| 101 | 1 |
| 101 | 2 |
| and so on... | |

|  |  |  |
| --- | --- | --- |
| **p\_id** | **professor** | **subject** |
| 1 | P.Java | Java |
| 2 | P.Cpp | C++ |
| and so on... | | |

But in this case, the functional dependence ab -> c will be lost. Therefore, you cannot convert the table to normal Boyes-Codd form and still retain the previous functional dependencies.

Task 2

|  |  |
| --- | --- |
| Tutor\_ID | TutEmail |

|  |  |  |
| --- | --- | --- |
| StudentID | UnitID | Grade |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Topic | | | Book | | |
| UnitID | Date | TutorID | | Topic | Room |

Task 3

|  |  |  |  |
| --- | --- | --- | --- |
| ProjectName | ProjectManager | Budget | TeamSize |

|  |  |
| --- | --- |
| ProjectManager | Position |

Task 4

|  |  |
| --- | --- |
| Group | Specialty |

|  |  |
| --- | --- |
| Specialty | Faculty |

Task 5

|  |  |
| --- | --- |
| ProjectID | Department |

|  |  |  |
| --- | --- | --- |
| ProjectID | Curator | ProjectGroupsNumber |

|  |  |
| --- | --- |
| ProjectGroupsNumber | TeamSize |

Task 6

repetition of information

Dependency preserving decomposition

Lossless Join Decomposition